WE CLAIM:

1. A turbocharger having an impeller, the impeller being formed of a first material and being mounted on a turbocharger shaft by means of an insert that is an interference fit in the impeller, the insert comprising a second material of greater strength than the first material, and a constraining ring comprising a material having greater strength and a lower coefficient of thermal expansion than the first material, the constraining ring surrounding at least a part of an axial length of the impeller that overlies the insert, thereby to maintain the interference between the insert and the impeller during use of the turbocharger over its operating speed and temperature range.

2. The turbocharger according to claim 1, wherein the impeller is formed of aluminum alloy and wherein the shaft, the insert and the ring are formed of steel.

3. The turbocharger according to claim 2, wherein the insert comprises mild steel and the ring comprises high-tensile steel.

4. The turbocharger according to claim 1, wherein the constraining ring extends over at least most of the length of an interface connection between the insert and the impeller.

5. The turbocharger according to claim 1, wherein an abutment is provided on the insert to prevent axial movement of the constraining ring on a hub of the impeller when the impeller assembly is cold.

6. The turbocharger according to claim 1, wherein the constraining ring is provided with a circumferential land in its outer surface and a sealing ring is located thereon to cooperate with static structure of the turbocharger.

7. The turbocharger according to claim 5, wherein an oil thrower ring on a flange of the insert cooperates with the land to define a groove to contain the sealing ring.

8. The turbocharger according to claim 7, wherein the oil thrower ring serves to prevent axial movement of the constraining ring when the impeller assembly is cold.

9. An impeller for a turbocharger, comprising a hub of a first material and an insert that is an interference fit in the hub for receipt of a shaft of the turbocharger, the insert comprising a second material of greater strength than the first material, the hub having mounted thereon a constraining ring of a material having greater strength and a lower coefficient of thermal expansion than the first material, the ring surrounding at least a part of an axial length of the impeller that overlies the insert, thereby to maintain the interference between the insert and the impeller during use of the turbocharger over its operating speed and temperature range.

10. The impeller according to claim 9, wherein the impeller has a body formed of an aluminum alloy and wherein the insert and the ring are formed of steel.

11. The impeller according to claim 10, wherein the insert comprises mild steel and the ring comprises high-tensile steel.

12. The impeller according to claim 9, wherein the constraining ring extends over at least most of the length of an interface connection between the insert and the impeller.

13. The impeller according to claim 9, wherein an abutment is provided on the insert to prevent axial movement of the constraining ring on the impeller hub when the impeller assembly is cold.

14. The impeller according to claim 9, wherein the constraining ring is provided with a circumferential land in its outer surface and a sealing ring is located thereon to cooperate with static structure of the turbocharger.

15. The impeller according to claim 14, wherein an oil thrower ring on a flange of the insert cooperates with the land to define a groove to contain the sealing ring.

16. The impeller according to claim 15, wherein the oil thrower ring provides an abutment to prevent axial movement of the constraining ring when the impeller assembly is cold.